REMARKS

This is in response to the Office Action dated September 2, 2003. Claims 1-7, 10, 11 and 16-20 are now pending.

General

For purposes of example and without limitation, certain example embodiments of this invention relate to a semiconductor laser device including multiple laser resonators. One laser resonator may emit light at a first wavelength, and another resonator may emit light at a second wavelength. In order to emit the different wavelengths, the different laser resonators have active layers (i.e., light emitting layers) of different materials. In certain example embodiments, the active layers of the different resonators have different Group V elements (e.g., P, As, Sb, N) (page 7, lines 11-19; and page 8, lines 3-24). For example, in the Fig. 1 embodiment, the active layer 113 of one resonator is of AlGaAs, whereas the active layer 122 of the other resonator is of GaInP (note the different Group V elements As and P). In certain example embodiments, *one of the laser resonators may be located in a groove (see active laser layer 122 in Fig. 1), whereas the other laser resonator is not located in the groove (see active laser layer 113 in Fig. 1).* Moreover, a high resistance region (e.g., 141) may be provided between the resonators in order to electrically isolate the resonators (page 9, lines 7-14; page 10, lines 6-19; and page 16, lines 3-6). In the Fig. 1 embodiment, for example, the *high resistance region 141 may be formed by implanting Ga ions and/or protons into the sidewall of the groove 160* (page 16, lines 3-6). In certain embodiments, a current path can be formed in the high

resistance region via impurity diffusion 142 (page 10, lines 15-19; and page 16, lines 8-12).

Claim 1

Claim 1 stands rejected under 35 U.S.C. Section 102(e) as being allegedly anticipated by the newly cited Paoli reference (US 5,963,568). This new ground of rejection is respectfully traversed for at least the following reasons.

Claim 1 requires "first and second semiconductor laser resonators having different light emitting active layers of materials different from each other . . . . said first semiconductor laser resonator being located in a ***groove*** including a base and sidewalls, and said second semiconductor laser resonator not being located in said groove; and a high-resistance region in a sidewall of said groove which is provided between the semiconductor laser resonators, said high-resistance region having sufficient resistance to electrically isolate the first and second semiconductor laser resonators from one another." For example, Fig. 1 of the instant application illustrates a first laser resonator (e.g., see active layer 122) being located in a groove, whereas a second laser resonator (e.g., see active layer 113) is not located in the groove. A high resistance region 141 is at least partially located in a sidewall of the groove. The cited art fails to disclose or suggest the aforesaid underlined and quoted aspects of claim 1.

The newly cited Paoli '568 reference discloses active layers 18 and 26. However, Paoli significantly differs from the invention of claim 1 because Paoli fails to disclose or suggest either laser being located in a "groove" that includes a base and sidewalls as

required by claim 1. Furthermore, since no groove is provided in Paoli, the reference also clearly fails to disclose or suggest a high resistance region at least partially provided in at least part of a sidewall of the groove as required by claim 1. For both of these significant reasons, Paoli cannot possibly anticipate claim 1. Paoli is entirely unrelated to the invention of claim 1 in each of these respects.

Claim 16

Claim 16 requires "the active layer of the second laser resonator being provided in a groove, whereas the active layer of the first laser resonator is not provided in a groove; and a high-resistance region provided at least along a sidewall of the groove in which the active layer of the second laser resonator is provided, the high-resistance region comprising ions and/or protons implanted into the sidewall of the groove." Again, Paoli '568 clearly fails to disclose or suggest these underlined aspects of claim 1. In particular, Paoli fails to disclose or suggest either laser being located in a "groove", and also fails to disclose or suggest a high resistance region at least partially provided in at least part of a sidewall of the groove as required by claim 16. For each of these reasons, Paoli cannot possibly anticipate claim 16. Paoli is entirely unrelated to the invention of claim 16.

Claim 20

Claim 20 stands rejected under 35 U.S.C. Section 103(a) as being allegedly unpatentable over Paoli '568 in view of Lang (US 3,999,146). This Section 103(a) rejection is respectfully traversed for at least the following reasons.

Claim 20 requires "an isolating groove defined between the first and second semiconductor laser resonators for electrically isolating the first and second semiconductor laser resonators from one another; each of said first and second semiconductor laser resonators being mounted on a heat sink having a concave portion defined in a surface thereof, and each of the semiconductor laser resonators being mounted in a junction-down manner on the heat sink so that in each semiconductor laser resonator a cap layer thereof is located between the heat sink and an active layer thereof, and so that the active layer of each semiconductor laser resonator is located between said substrate and the heat sink; and wherein at least a portion of said isolating groove extends upward from the concave portion defined in the surface of the heat sink."

For example and purposes of understanding, see Fig. 7 of the instant application which illustrates first and second semiconductor laser resonators (e.g., see active layers 313, 322) mounted in a junction-down manner on a heat sink 302 having a concave portion 307 defined in a surface thereof. In each semiconductor laser resonator, a cap layer 315, 324 is located between the heat sink 302 and an active layer thereof (313 or 322). At least a portion of isolating groove 350 extends upward from the concave portion 307 defined in the surface of the heat sink 302 between the resonators.

Paoli clearly fails to disclose or suggest the aforesaid underlined aspects of claim 20. Recognizing these flaws in Paoli, the Office Action cites Lang for the teaching of a heat sink 5. However, Lang's heat sink 5 does not include a "concave portion defined in a surface thereof" from which an "isolating groove extends upward" as required by claim

20. Additionally, neither Paoli '568 nor Lang disclose or suggest the junction-down mounting so that a cap layer is between the heat sink and an active layer as required by claim 20. Thus, even if the references were combined as alleged in the Office Action (which applicant believes would be incorrect in any event), the invention of claim 20 still would not be met.

Conclusion

For at least the foregoing reasons, it is respectfully requested that all rejections be withdrawn. All claims are in condition for allowance. If any minor matter remains to be resolved, the Examiner is invited to telephone the undersigned with regard to the same.

Respectfully submitted,

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